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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,689	06/13/2001	Robert D. Fields	10276 (3080-0060	4306

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EXAMINER

NOTE, JANIS L

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 12/03/2001

5

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/880,689

Applicant(s)

FIELDS et al

Examiner

J. DOTE

Group Art Unit

1753

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on 10/5/01
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-39 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-14, 16-23, 25-31, 35, 36 is/are rejected.
- ☒ Claim(s) 15, 24, 32-34, 37-39 is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☒ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_ ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other \_\_\_\_\_

Office Action Summary

1. The disclosure is objected to because of the following informalities:

The use of the trademarks, e.g., Digimaster 9110 [sic: DIGIMASTER 9100] at page 13, line 21, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive - applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claims 16-29 and 35-39, the recitation "magnetic carrier particles" lacks antecedent basis in the specification. Compare page 5, line 21, and page 14, line 3, of the specification, which disclose "hard magnetic carrier particles." The recitation "magnetic carrier particles" includes "soft"

magnetic carrier particles, which are not disclosed in the specification.

3. Claim 26 is objected to because of the following informalities: the misspelling "stronitium."

Appropriate correction is required.

4. The term "2'/10' MECCA charge ratio" is defined as the ratio of the level of charge obtained in 2 minutes of charging the toner to the level of charge obtained after 10 minutes of charging, where the charge is determined in a MECCA device. See the instant specification, page 19, lines 15-21, and page 22, lines 1-15.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 7, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,074,795 (Watanabe).

Watanabe discloses a developer comprising carrier particles and a toner. The toner comprises toner particles mixed with hydrophobized silica particles HDK2000. The toner particles comprise a binder resin, a charge control agent, and a releasing composition D. Releasing composition D comprises polyethylene wax as the releasing agent and silica particles HDK2000. See example 4 at cols. 9-10. The carrier particles can comprise iron powder, ferrite powder, magnetite, and nickel powders. Col. 6, lines 25-27.

8. Claims 30, 31, 35, and 36 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Watanabe.

Watanabe discloses a developer as recited in paragraph 7 above, which is incorporated herein by reference.

Watanabe does not disclose that his toner has a charge rate such that the "2'/10' MECCA charge ratio is from about 0.9 to about 1.1" as recited in instant claims 30 and 31. However, Watanabe's toner in example 4 exhibits an initial charge of  $-17.8 \mu\text{C/g}$  and after 100,000 copies, a charge of  $-17.3 \mu\text{C/g}$ . Col. 7, lines 26-28 and 36-38, and Table 1, example 4, at col. 16. The ratio of the initial charge to the charge after 100,000 copies is 1.0, which meets the numerical range recited in instant claims 30 and 31. Because Watanabe's toner maintains a substantially constant charge rate as seen by the ratio of 1.0, it is reasonable to conclude that Watanabe's toner has a charge ratio of 1.0 of the charge after 2 minutes of charging to the charge after 10 minutes of charging, which meets the charge limitation recited in instant claims 30 and 31. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

9. Claims 1, 2, and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,840,457 (Urawa).

Urawa discloses a toner comprising toner particles mixed with hydrophobic silica particles. The toner particles comprise a cross-linked styrene-acrylate copolymer as the binder resin, a

monoazo dye iron complex as the charge control agent, a polyethylene wax as the release agent, carbon black, and magnetic particles. Col. 26, lines 35-46, example 1 at cols. 27-28. The magnetic particles can comprise a metal oxide, such as iron, cobalt nickel, copper, magnesium, manganese, aluminum and silicon. The magnetic particles preferably comprise iron oxide. Col. 9, lines 1-7. Urawa's magnetic particles meet the limitation "inorganic particles" recited in instant claim 1.

10. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,364,720 (Nakazawa).

Nakazawa discloses a toner comprising toner particles mixed with hydrophobic silica particles. The toner particles comprise a cross-linked styrene-acrylate copolymer as the binder resin, a charge control agent, a polypropylene wax as the resinous material, and magnetic material of production example 1. Col. 15, line 51, to col. 16, line 19, and example 11 at col. 20, lines 66-68. The magnetic material particles comprise magnetite and 0.8 wt% of silica fine powder. Col. 16, lines 30-38. The amount of internal silica fine powder in the toner particles is 0.4 wt% based on the weight of the toner particles. (The amount of 0.4 wt% is determined from the amounts of the components used in example 11.)

11. Claim 10 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakazawa.

Nakazawa discloses a toner as described in paragraph 10 above, which is incorporated herein by reference. As set forth in paragraph 10, Nakazawa's toner comprises a cross-linked styrene-acrylate copolymer.

Claim 10 is written in product-by-process format. Nakazawa does not disclose that the cross-linked styrene-acrylate copolymer is made by a "limited coalescence" process as recited in instant claim 10. However, as discussed above, Nakazawa's copolymer meets the compositional limitations recited in instant claims 1 and 5. Claim 1 only recites "a toner resin." Accordingly, Nakazawa's copolymer appears to be the same or substantially the same as the toner resin made by the "limited coalescence" process recited in instant claim 10. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

12. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa combined with US 5,990,332 (Sukata).

Nakazawa discloses a toner as described in paragraph 10 above, which is incorporated herein by reference.



Nakazawa's toner in example 11 does not comprise an organo iron complex charge control agent as recited in instant claim 6. However, Nakazawa discloses that the charge control agent can be any well-known metal complex of a monoazo dye or a metal complex of iron with salicylic acid, naphtholic acid, and dicarboxylic acids. Col. 10, lines 34-40. Nakazawa discloses that in view of dispersibility, the charge control agent is preferably metal complexes of monoazo dyes, metal complexes of salicylic acid, of dialkylsalicylic acid, of naphtholic acid, and of dicarboxylic acids. Col. 10, lines 43-47.

Sukata discloses charge controlling iron complexes of aromatic hydroxycarboxylic acids represented by formula (I) at col. 2, lines 40-59. See Table 1, compounds 35 to 48 (which include complexes of salicylic acids or of hydroxy naphtholic acids), example 3 at col. 19, and example 16 at col. 25. Sukata discloses that said complexes of aromatic hydroxycarboxylic acid have excellent charge control or charge enhancing property, environmental resistance to temperature and humidity storage stability, heat stability, and durability. Col. 2, lines 16-27, and example 16. When the complexes are used in toners, they do not affect toner fixability or offset property. Col. 2, lines 28-29.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Nakazawa and

Sukata, to use Sukata's iron complex of an aromatic hydroxycarboxylic acid as the charge control agent in Nakazawa's toner, because that person would have had a reasonable expectation of successfully obtaining a toner having the benefits disclosed by Sukata.

13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa combined with Sukata as applied to claim 8 above, further in view of the teachings of Nakazawa.

The combined teachings of Nakazawa and Sukata render obvious a toner as described in paragraph 12 above, which is incorporated herein by reference. As previously discussed, Nakazawa's toner comprises a cross-linked styrene-acrylate copolymer.

Claim 9 is written in product-by-process format. Nakazawa does not disclose that the cross-linked styrene-acrylate copolymer is made by a "limited coalescence" process as recited in instant claim 9. However, as discussed above, the Nakazawa's copolymer meets the compositional limitations recited in instant claim 8. Accordingly, Nakazawa's copolymer appears to be the same or substantially the same as the toner resin made by the "limited coalescence" process recited in instant claim 9. The burden is on applicants to prove otherwise. Marosi, supra; Thorpe; MPEP 2113.

14. Claims 5, 10, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe combined with US 5,230,978 (Kawasaki).

Watanabe discloses a developer as described in paragraph 7 above, which is incorporated herein by reference.

Watanabe's toner in example 4 does not comprise a cross-linked styrene-acrylate copolymer as the binder resin as recited in instant claim 5. However, Watanabe discloses that the binder resin can include known resins which are used for conventional toners, such as copolymers of styrene and acrylates. Col. 5, lines 3-17.

Kawasaki discloses a toner binder resin comprising a cross-linked styrene-acrylate copolymer, which meets the limitation recited in instant claim 5. Col. 2, lines 13-24, and production examples 2-7. Kawasaki discloses that toners comprising said copolymer have low-temperature fixing properties, and have excellent strength to be used in high-speed copying machines. Col. 1, lines 57-61. The toners have a wide non-offset temperature range and provide stable and good-quality images without fog. Col. 1, line 63, to col. 2, line 3, and Table 1 at col. 6, examples 2-7.

Claim 10 is written in product-by-process format. Kawasaki does not disclose that the cross-linked styrene-acrylate copolymer is made by a "limited coalescence" process as recited

in instant claim 10. However, as discussed above, Kawasaki's copolymer meets the compositional limitations recited in instant claim 5. Accordingly, Kawasaki's copolymer appears to be the same or substantially the same as the toner resin made by the "limited coalescence" process recited in instant claim 10. The burden is on applicants to prove otherwise. Marosi, supra; Thorpe; MPEP 2113.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kawasaki, to use Kawasaki's cross-linked styrene-acrylate copolymer as the binder resin in Watanabe's toner of example 4, because that person would have had a reasonable expectation of successfully obtaining a developer capable of being used in a high-speed copier, and providing high-quality images without fog when fixed at low temperatures.

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe combined with Sukata.

Watanabe discloses a developer as described in paragraph 7 above, which is incorporated herein by reference.

Watanabe's toner in example 4 does not comprise an organo iron complex charge agent as recited in instant claim 6. However, Watanabe discloses that the charge control agent can include one or more known charge control agents, such as metal

complexes of monoazo dyes, and iron complexes of salicylic acid, dialkylsalicylic acids, naphthoic acid, or dicarboxylic acid. Col. 5, lines 53-54, and col. 6, lines 7-11.

Sukata discloses charge controlling iron complexes of aromatic hydroxycarboxylic acids represented by formula (I). The discussion of Sukata in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Watanabe and Sukata, to use Sukata's iron complex of an aromatic hydroxycarboxylic acid as the charge control agent in Watanabe's toner in example 4, because that person would have had a reasonable expectation of successfully obtaining a developer having the benefits disclosed by Sukata.

16. Claims 8, 9, 11, 17, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe combined Kawasaki and Sukata.

The combined teachings of Watanabe and Kawasaki render obvious a developer as described in paragraph 14 above, which is incorporated herein by reference.

Watanabe's toner in example 4 does not comprise an organo iron complex charge agent as recited in instant claim 6. However, Watanabe discloses that the charge control agent can

include one or more known charge control agents, such as metal complexes of monoazo dyes, and iron complexes of salicylic acid, dialkylsalicylic acids, naphthoic acid, or dicarboxylic acid. Col. 5, lines 53-54, and col. 6, lines 7-11.

Sukata discloses charge controlling iron complexes of aromatic hydroxycarboxylic acids represented by formula (I). The discussion of Sukata in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Watanabe and Sukata, to use Sukata's iron complex of an aromatic hydroxycarboxylic acid as the charge control agent in the toner rendered obvious over the combined teachings of Watanabe and Kawasaki, because that person would have had a reasonable expectation of successfully obtaining a developer having the benefits disclosed by Sukata.

17. Claims 12-14, 21-23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe combined Kawasaki and Sukata, in view of additional teachings in Watanabe.

The combined teachings of Watanabe, Kawasaki, and Sukata render obvious a developer as described in paragraph 16 above, which is incorporated herein by reference.

Watanabe's toner in example 4 comprises 89 wt% of binder resin, 1.8 wt% of charge control agent, 2.7 wt% of the polyethylene wax, 1.6 wt% of the internal silica particles, and 0.5 wt% of the surface silica particles, based on the weight of the toner particles. The amounts are determined from the amounts reported in Watanabe's example 4. The amounts of the binder resin, the charge control agent, and the surface silica meet the amounts recited in instant claims 12 and 14.

The amount of 1.6 wt% of the internal silica particles is outside the range of "about 0.1 wt% to about 0.5 wt%" recited in instant claim 12, and of "about 0.2 wt% to about 0.3 wt%" recited in instant claim 14.

Watanabe discloses that releasing agents having a melting point from about 60 to about 160°C can be used to prepare toners having good preservability, good resistance to blocking, and good releasability from fixing rollers. See col. 4, lines 58-61. The polyethylene wax releasing agent used in example 4 has a melting point of 110°C. Watanabe further discloses that said releasing agent can be preferably used in an amount of 0.5 to 20 wt%. Watanabe discloses that toners comprising the releasing agent in combination with silica particles capable of absorbing said releasing agent have good transferability and durability, and produce good quality toner images without offset. Col. 2, lines 23-29.

If the amount of the polyethylene wax in Watanabe's toner in example 4 were adjusted to 0.5 wt% based on the weight of the toner particles, the amount of the polyethylene wax would be about 0.56 part by weight and the amount of silica particles would be about 0.34 part by weight per 111.8 parts by weight of toner particles. The silica particles are present in an amount of about 0.3 wt% based on the weight of the toner particles, which meets the amounts recited in instant claims 11 and 13. (The amount of 0.34 part by weight is determined from the composition of releasing composition D in Watanabe's example 4).

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Watanabe, to adjust the amount of the polyethylene releasing agent to 0.5 wt% based on the weight of the toner particles in the toner rendered obvious over the combined teachings of Watanabe, Kawasaki, and Sukata, resulting in the amount of about 0.3 wt% of silica particles in the toner particles, because that person would have had a reasonable expectation of successfully obtaining a developer having good transferability and durability, and producing good quality toner images without offset as taught by Watanabe.

18. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe combined with Kawasaki and Sukata, as



applied to claim 21 above, further combined with US 5,500,320 (Saha).

The combined teachings of Watanabe, Kawasaki, and Sukata render obvious a developer as described in paragraph 17 above, which is incorporated herein by reference.

Watanabe does not disclose that the carrier particles can comprise strontium ferrite particles as recited in the instant claims. However, Watanabe discloses that the carrier particles can comprise ferrite powders coated with a resin. Col. 6, lines 25-27.

Saha teaches hard magnetic carrier particles comprising strontium ferrite particles coated with a polymeric coating. Col. 3, lines 58-67, and col. 9, lines 43-46. Saha discloses that said carrier particles provide developer compositions for magnetic brush development having high development speeds without loss of copy image quality. Col. 3, lines 2-15, col. 6, lines 25-39, and col. 10, lines 6-41.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Saha, to use Saha's strontium ferrite resin coated particles as the carrier particles in the developer rendered obvious over the combined teachings of Watanabe, Kawasaki, and Sukata, because that person would have had a reasonable expectation of successfully obtaining a developer capable of being used for magnetic brush development

having high development speeds without loss of copy image quality.

19. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe combined with Kawasaki, Sukata, and Saha, as applied to claim 27 above, further combined with US 5,102,769 (Creatura).

The combined teachings of Watanabe, Kawasaki, Sukata, and Saha render obvious a developer as described in paragraph 18, which is incorporated herein by reference.

Saha does not teach that its strontium ferrite carrier particles are coated with blend of polyvinylidene and polymethmethacrylate polymers as recited in instant claims 28 and 29. However, Saha teaches that his carrier particles can be coated with a poly(vinylidene fluoride) resin (e.g., KYNAR) or polymethacrylate resins. Col. 7, lines 7 and 14-15.

Creatura teaches that magnetic carrier particles can be coated with a polymeric coating comprising a blend of poly(vinylidene fluoride) and poly(methylmethacrylate) in a weight of ratio of 3 to 2. Example V at cols. 11-12. The ratio of 3 to 2 meets the ratio of about 80/20 to about 50/50 recited in instant claim 29. Creatura discloses that developers comprising said carrier particles provide images having acceptable solids, excellent halftones, and desirable line

resolution, with acceptable or substantially no background deposits. Col. 10, lines 25-29.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Creatura, to coat Saha's strontium ferrite carrier particles with Creatura's polymeric coating and to use those carrier particles in the developer rendered obvious over the combined teachings of Watanabe, Kawasaki, Sukata, and Saha, because that person would have had a reasonable expectation of successfully obtaining a developer capable of providing toner images having acceptable solids, excellent halftones, and desirable line resolution, with acceptable or substantially no background deposits, as taught by Creatura.

20. Claims 15, 24, 32-34, and 37-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest toner particles having the amounts of components recited in instant claims 15 and 24. Nor does the prior art teach or suggest toner particles having the particular compositions and the charge ratios recited in instant claims 32-34 and 37-39.


21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Nam Nguyen, can be reached on (703) 308-3322. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 (Rightfax) for after final faxes, and (703) 305-7718 for other official faxes.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Alva Catlett, whose telephone number is (703) 308-1100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JLD  
November 18, 2001

  
JANIS L. DOTE  
PRIMARY EXAMINER  
GROUP 1500  
1700